

Fig.1

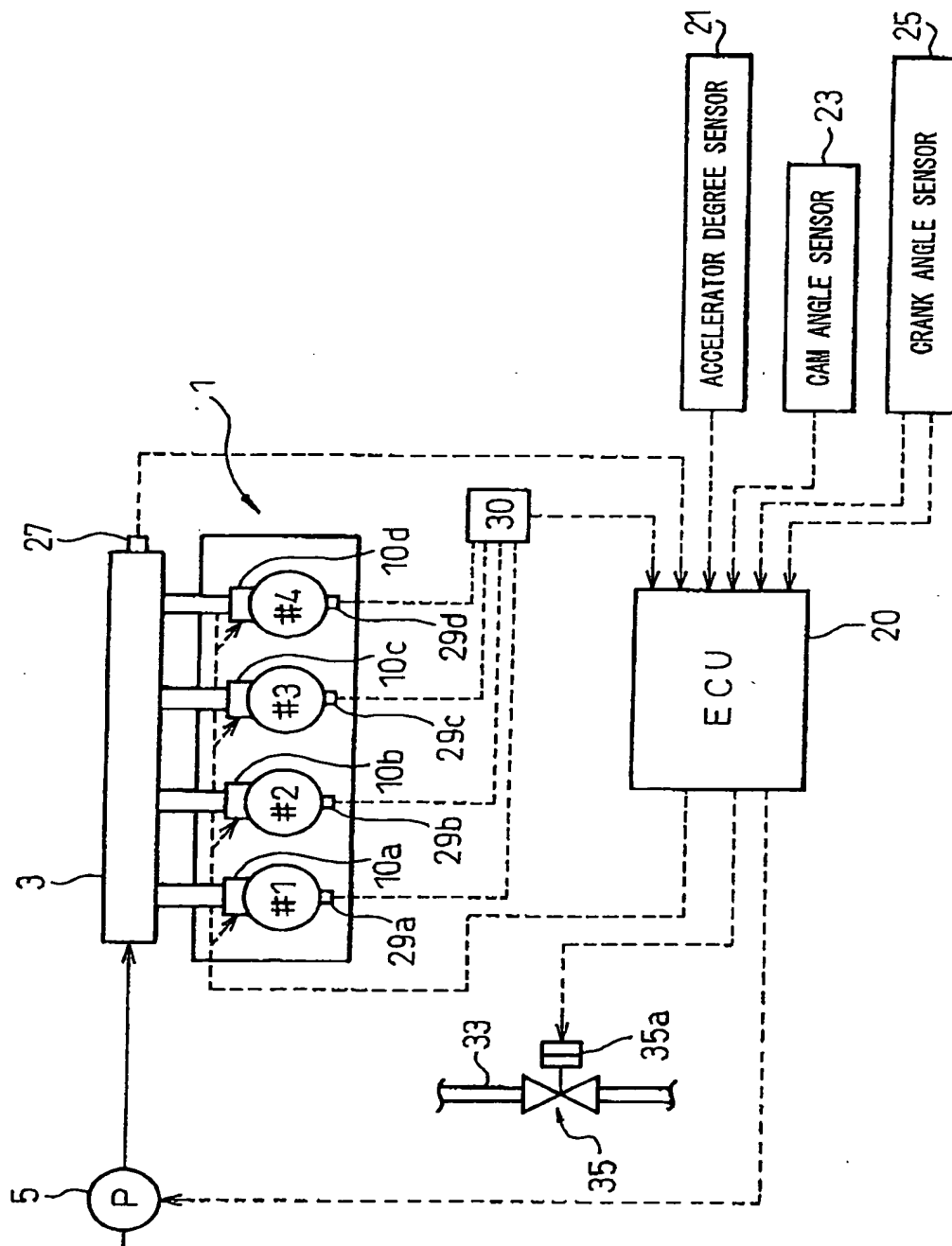


Fig. 2

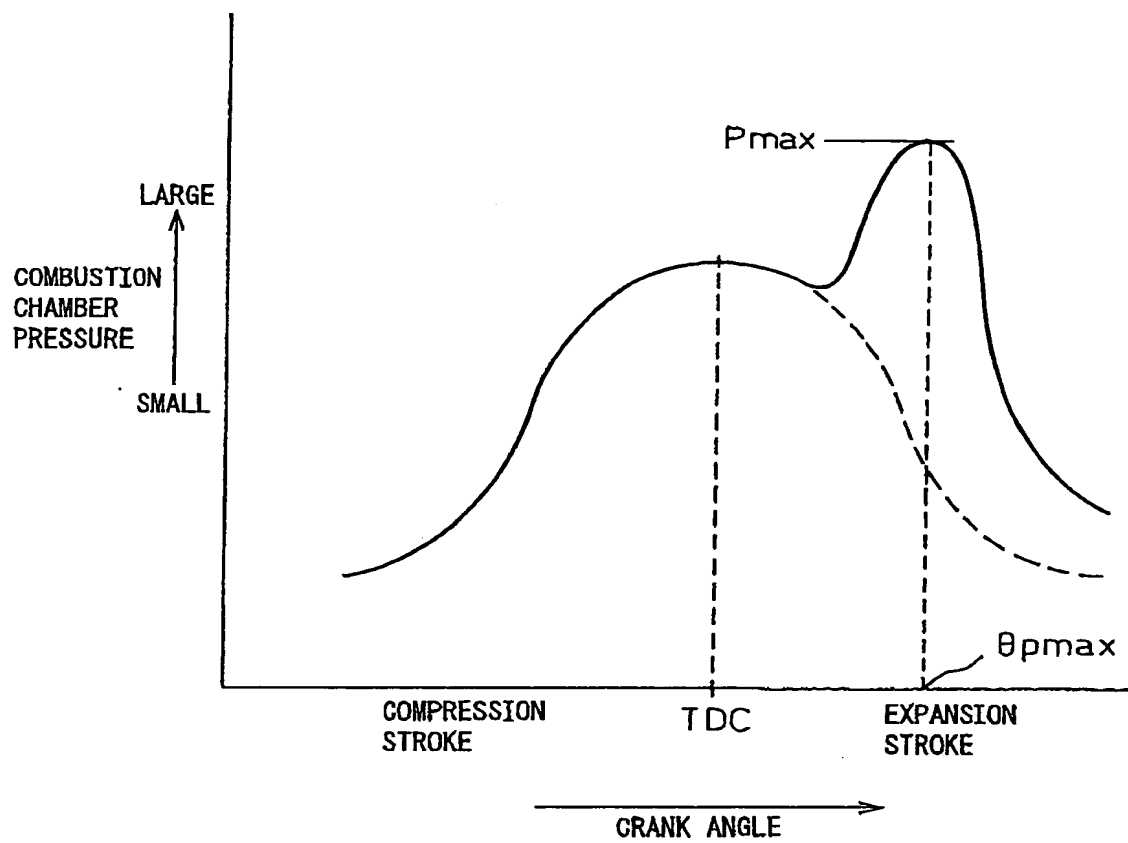


Fig.3

INJECTION MODE	COMBUSTION PARAMETER	$(dP/d\theta)_{\max}$	$(dP/d\theta)_{NO.2\max}$	$(dP/d\theta)_{NO.3\max}$
ONLY MAIN FUEL INJECTION		MAIN FUEL INJECTION INJECTION TIMING	—	—
PILOT INJECTION + MAIN FUEL INJECTION		PILOT INJECTION INJECTION TIMING	MAIN FUEL INJECTION INJECTION TIMING	—
MAIN FUEL INJECTION + AFTER INJECTION		MAIN FUEL INJECTION INJECTION TIMING	AFTER INJECTION INJECTION TIMING	—
PILOT INJECTION + MAIN FUEL INJECTION + AFTER INJECTION		PILOT INJECTION INJECTION TIMING	MAIN FUEL INJECTION INJECTION TIMING	AFTER INJECTION INJECTION TIMING

Fig.4

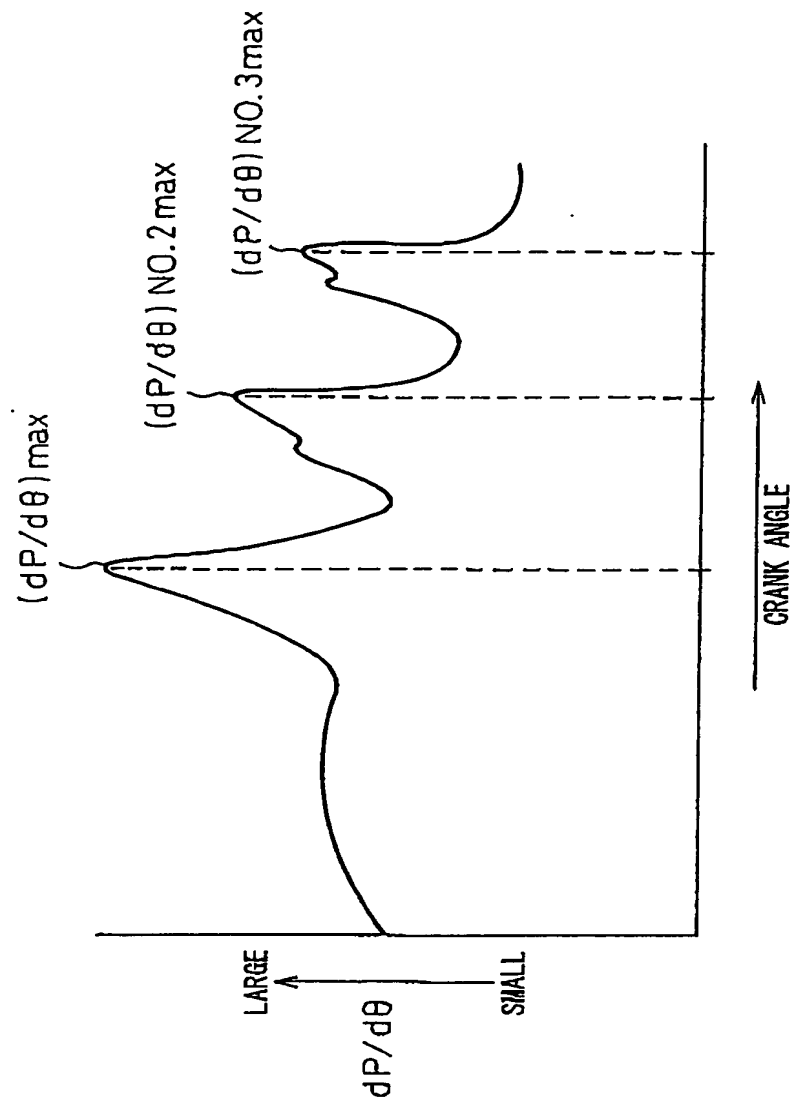


Fig.5

INJECTION MODE	COMBUSTION PARAMETER	$(d^2P/d\theta^2)_{\max}$		
		$(d^2P/d\theta^2)_{\max}$	NO. 2	NO. 3 $_{\max}$
ONLY MAIN FUEL INJECTION		MAIN FUEL INJECTION INJECTION TIMING	—	—
PILOT INJECTION + MAIN FUEL INJECTION		PILOT INJECTION INJECTION TIMING	MAIN FUEL INJECTION INJECTION TIMING	—
MAIN FUEL INJECTION + AFTER INJECTION		MAIN FUEL INJECTION INJECTION TIMING	AFTER INJECTION INJECTION TIMING	—
PILOT INJECTION + MAIN FUEL INJECTION + AFTER INJECTION		PILOT INJECTION INJECTION TIMING	MAIN FUEL INJECTION INJECTION TIMING	AFTER INJECTION INJECTION TIMING

Fig.6

INJECTION MODE	COMBUSTION PARAMETER	$(dQ/d\theta)_{max}$	$(dQ/d\theta)_{NO.2max}$	$(dQ/d\theta)_{NO.3max}$
ONLY MAIN FUEL INJECTION		MAIN FUEL INJECTION INJECTION TIMING	—	—
PILOT INJECTION + MAIN FUEL INJECTION		PILOT INJECTION INJECTION TIMING	MAIN FUEL INJECTION INJECTION TIMING	—
MAIN FUEL INJECTION + AFTER INJECTION		MAIN FUEL INJECTION INJECTION TIMING	AFTER INJECTION INJECTION TIMING	—
PILOT INJECTION + MAIN FUEL INJECTION + AFTER INJECTION		PILOT INJECTION INJECTION TIMING	MAIN FUEL INJECTION INJECTION TIMING	AFTER INJECTION INJECTION TIMING

Fig.7

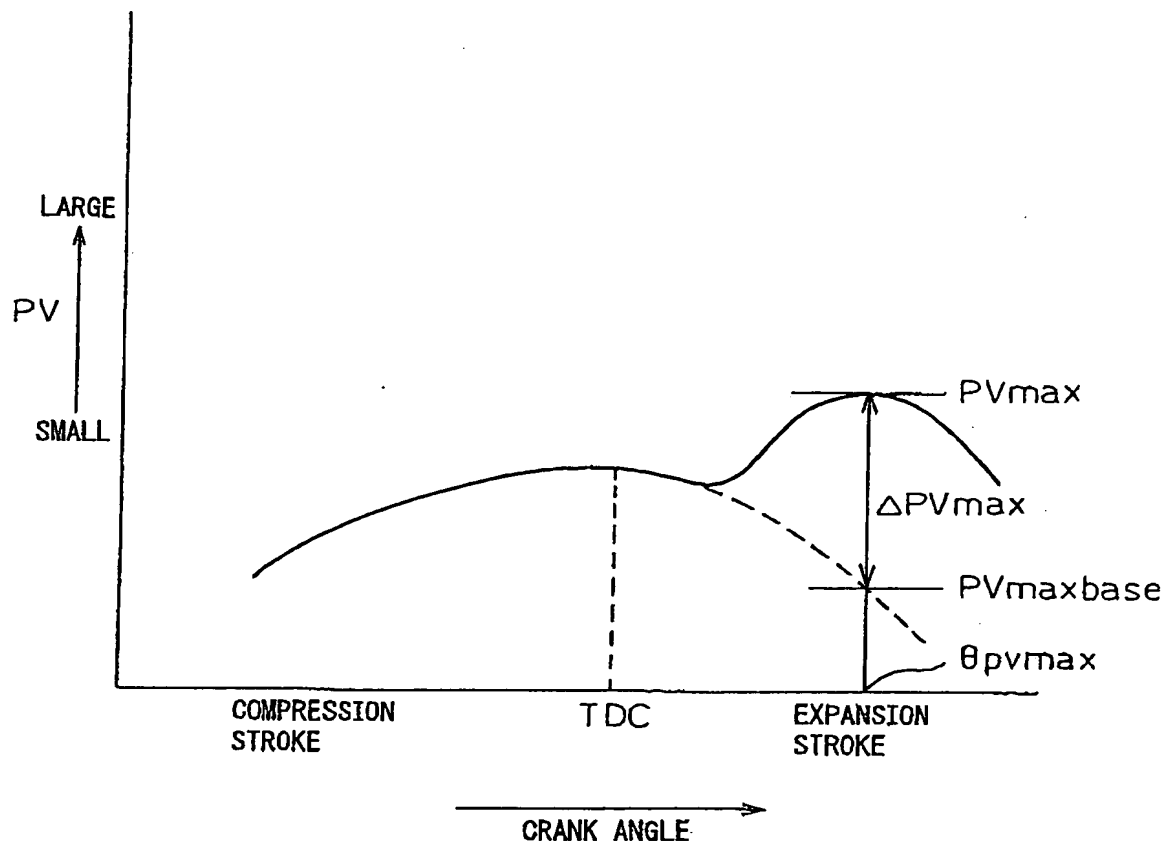


Fig. 8

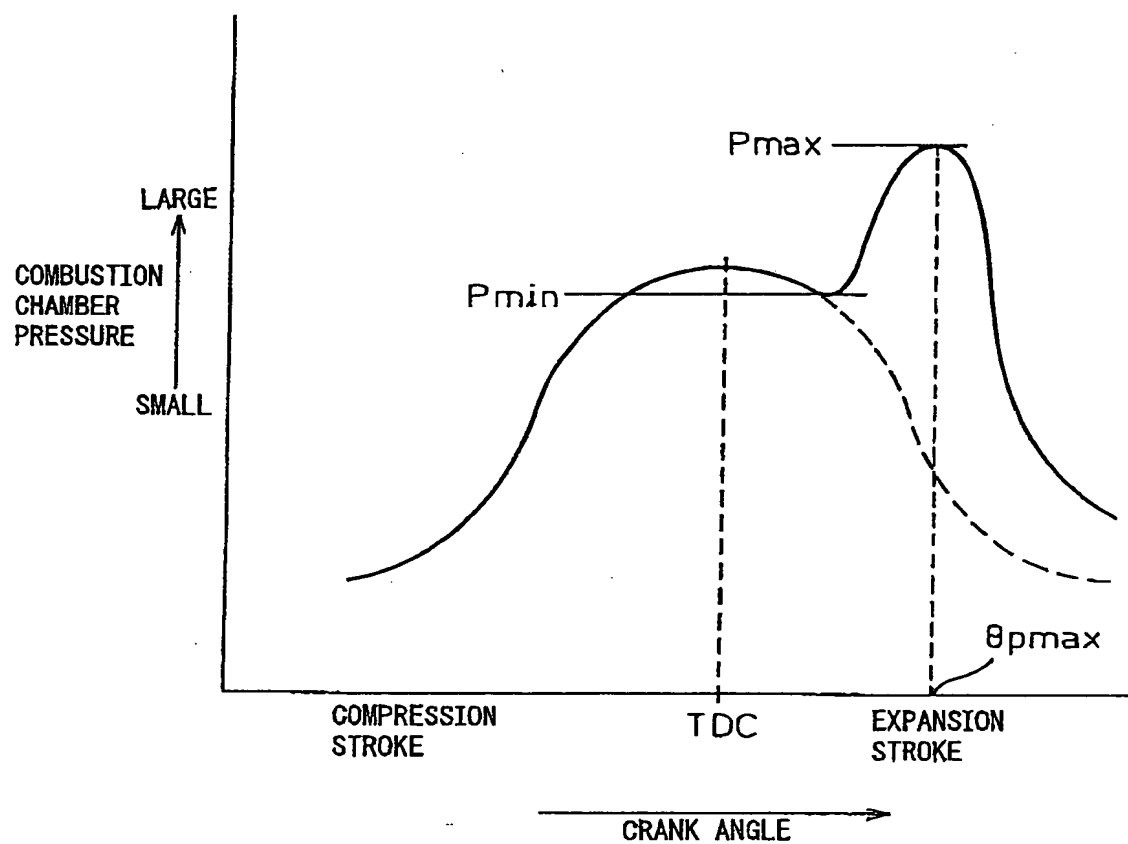


Fig.9

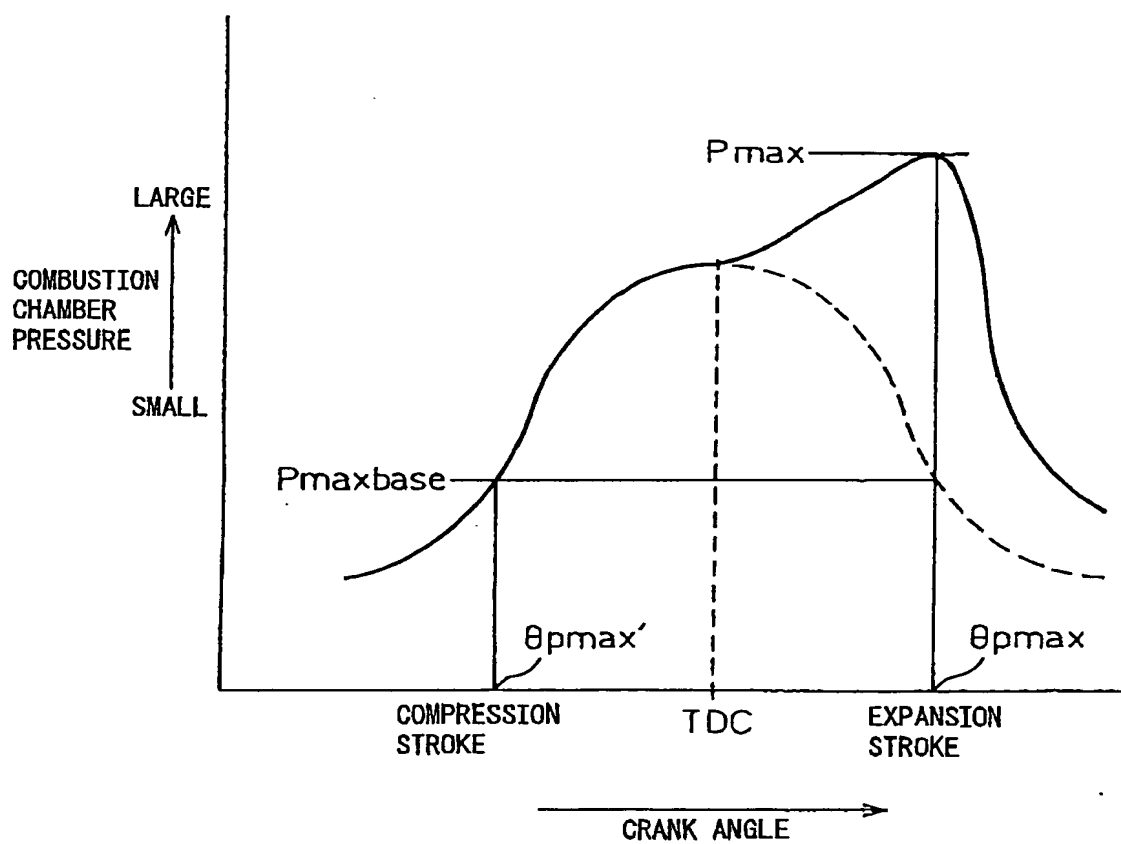


Fig.10

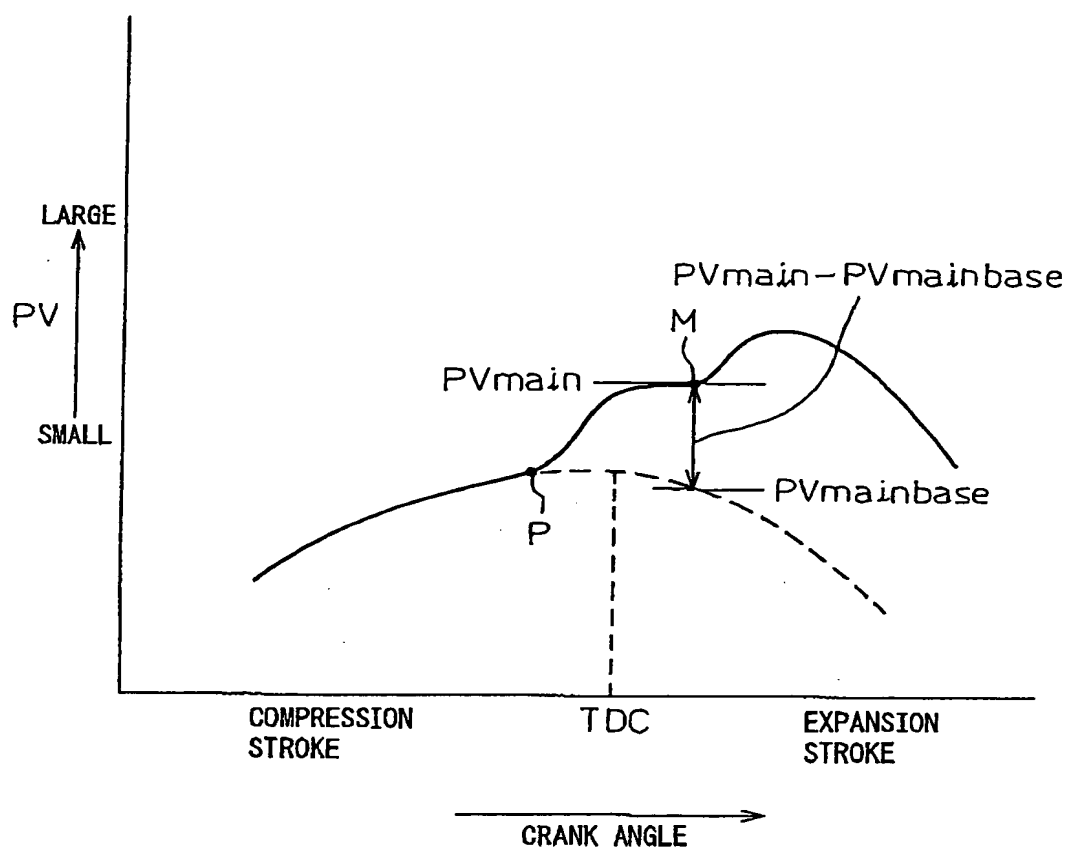


Fig.11

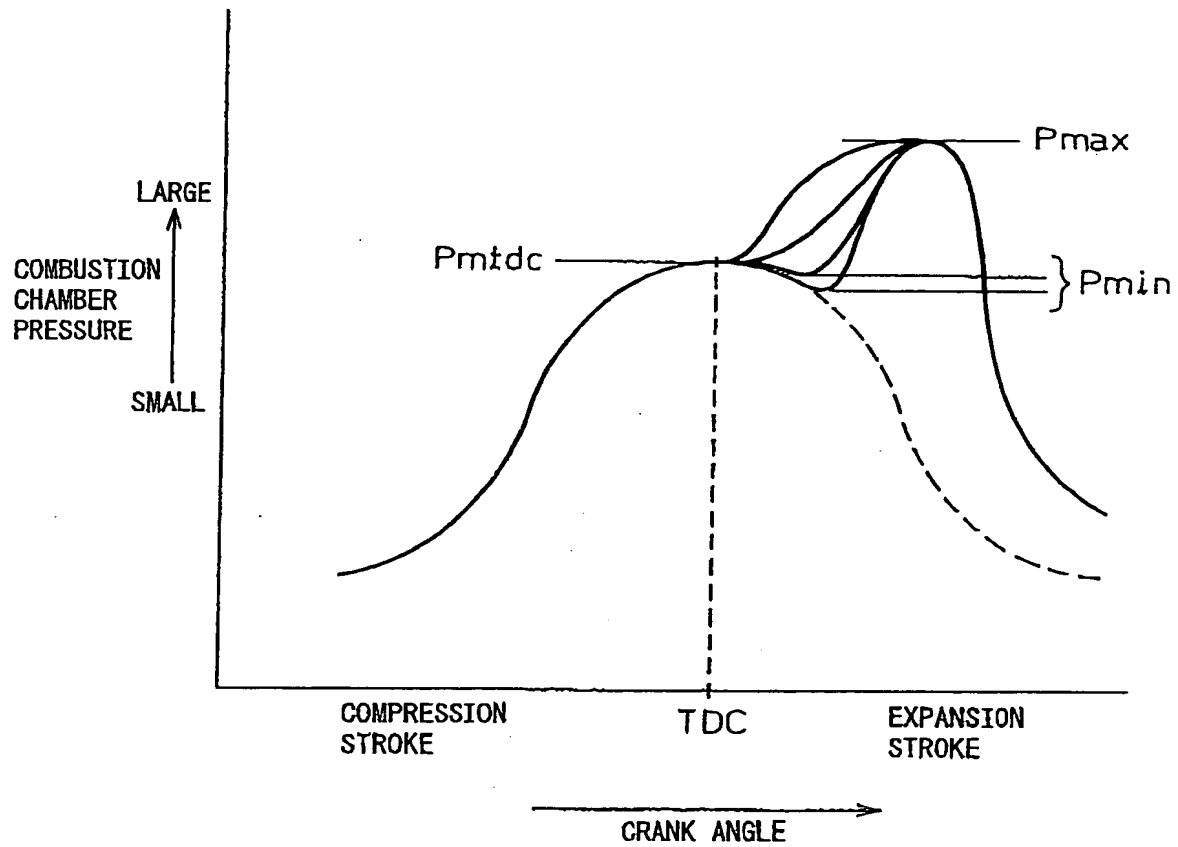


Fig.12

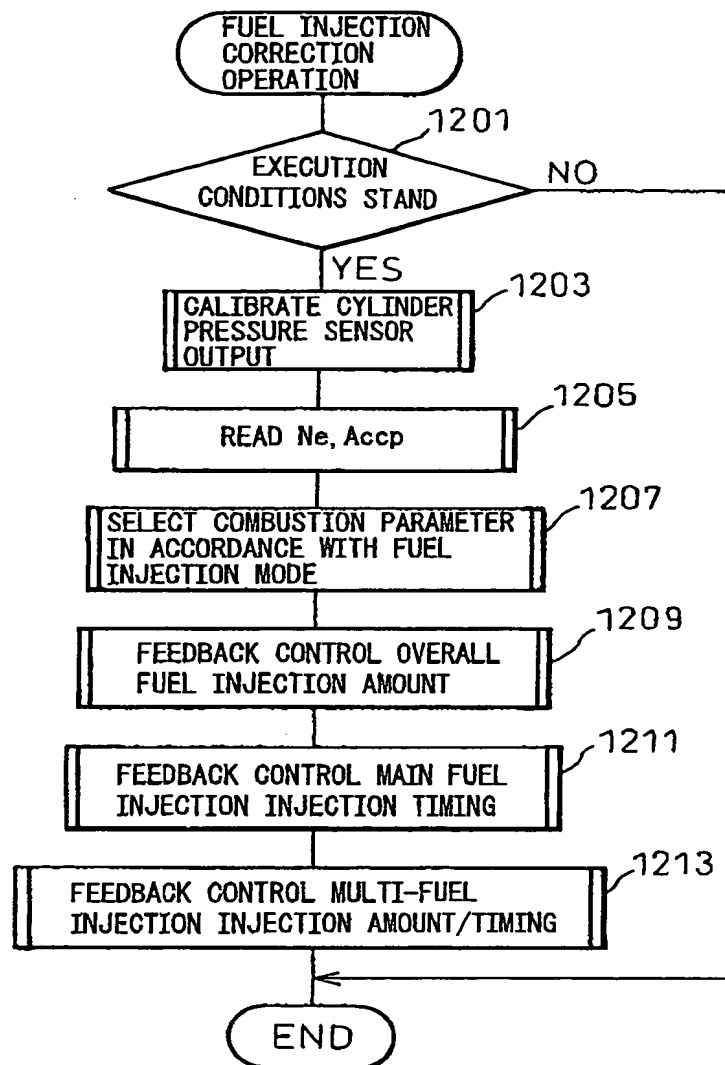


Fig.13

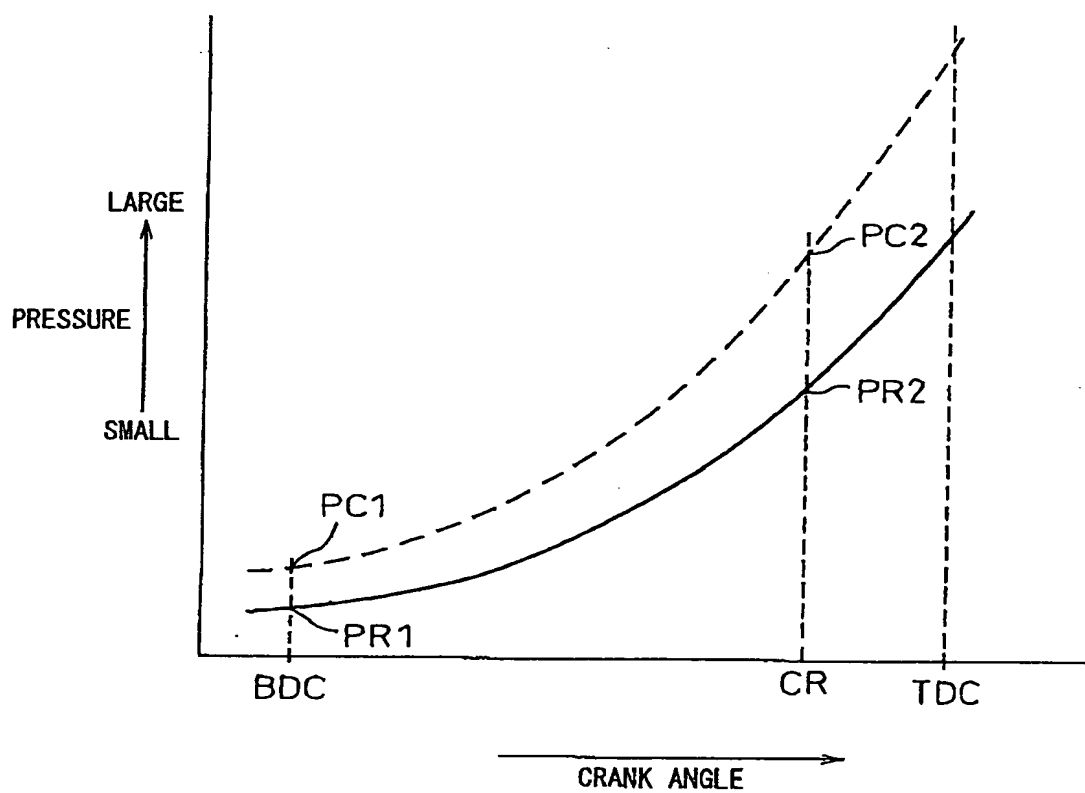


Fig.14

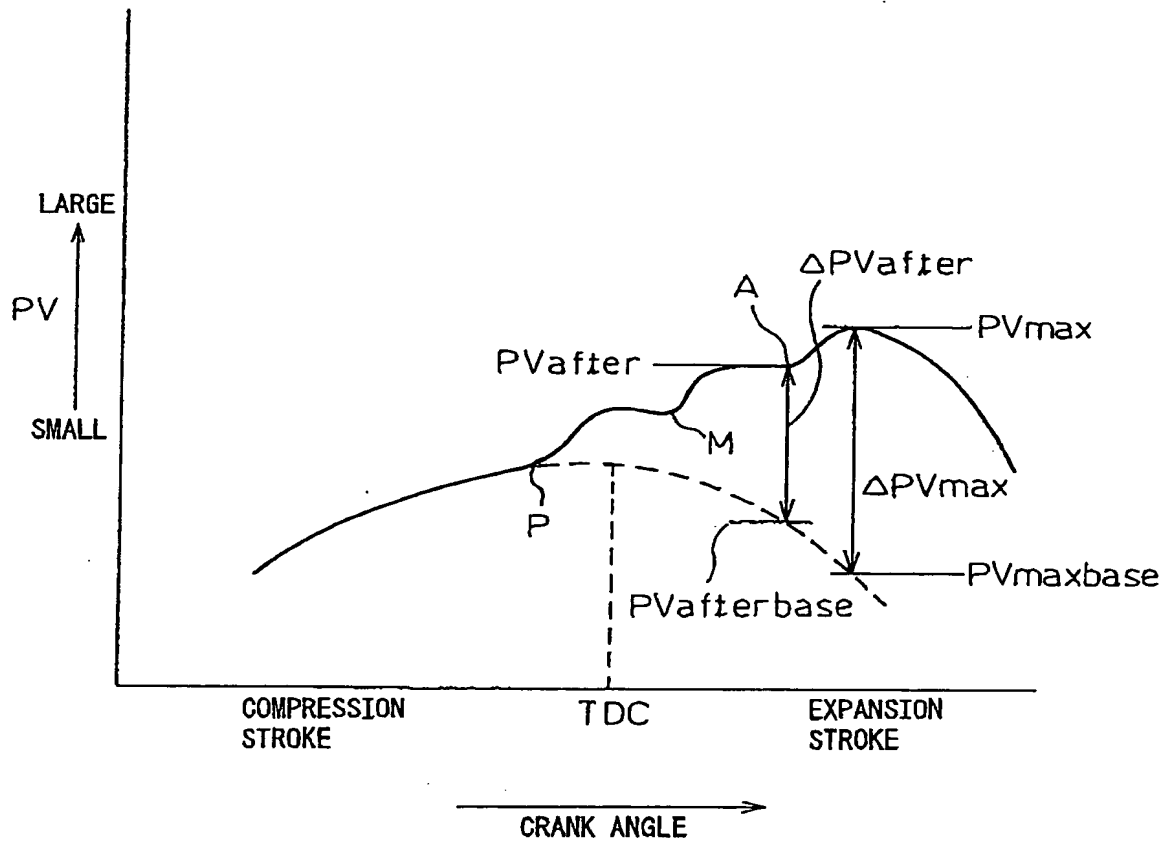


Fig.15

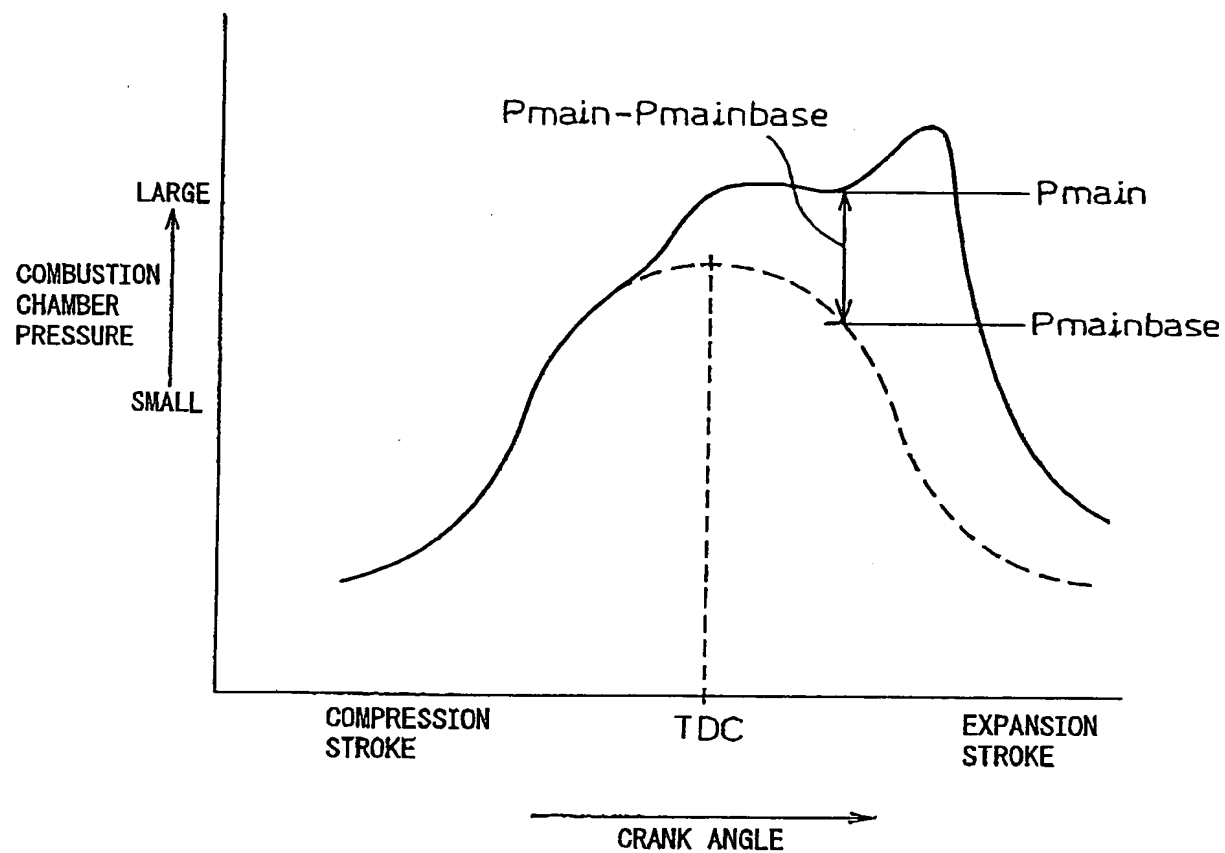


Fig.16

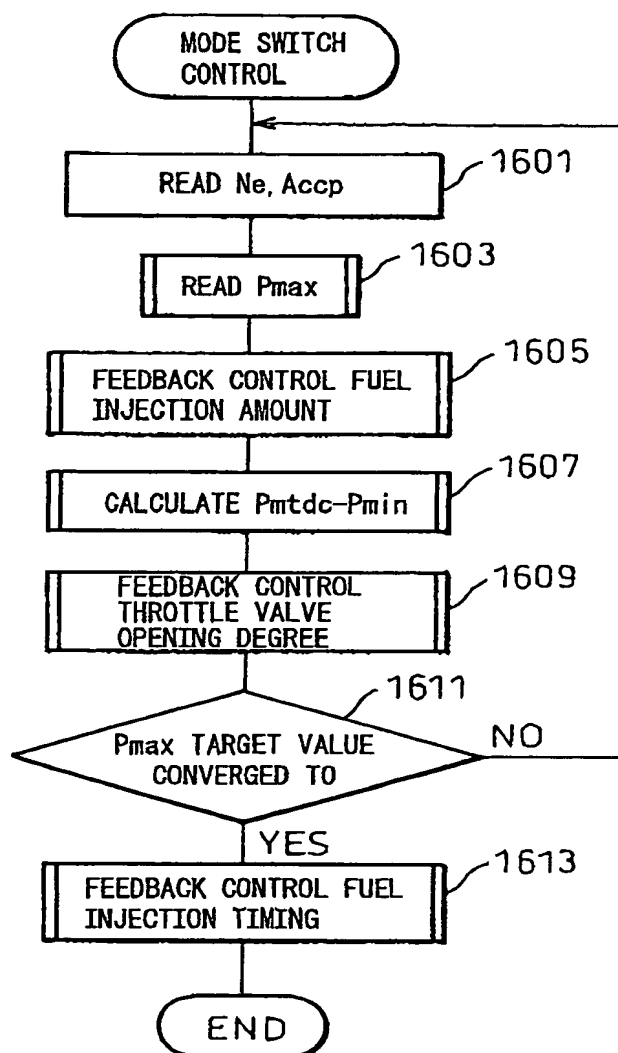


Fig.17

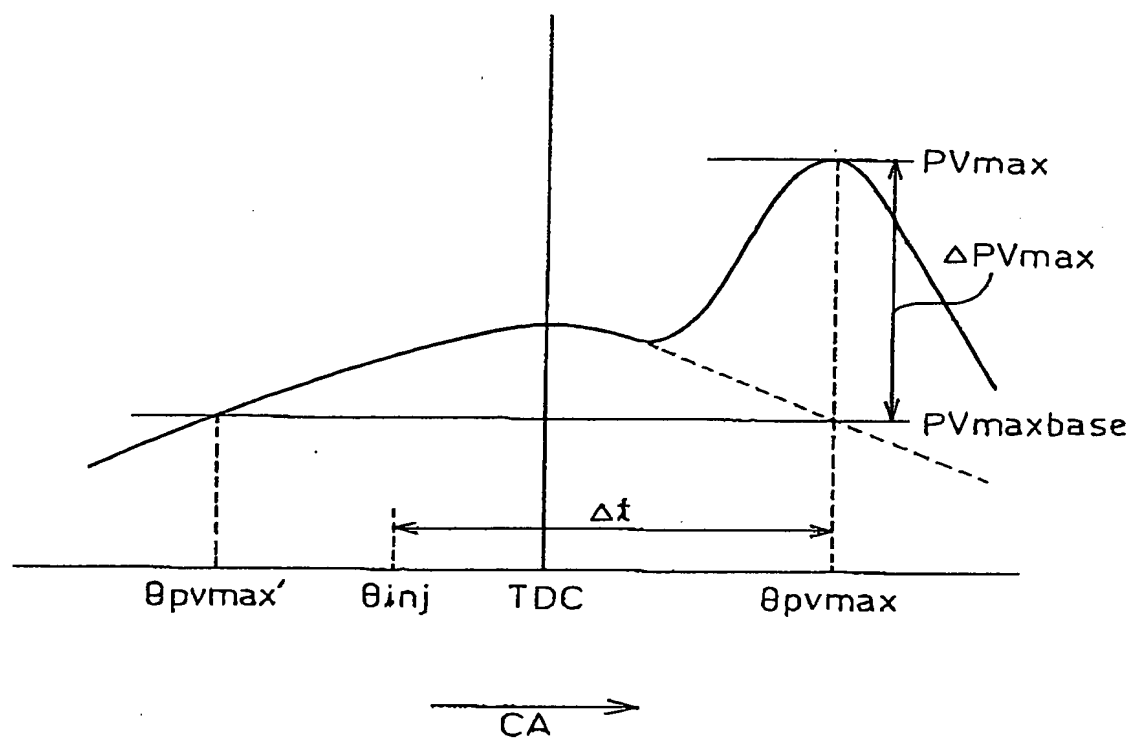


Fig.18

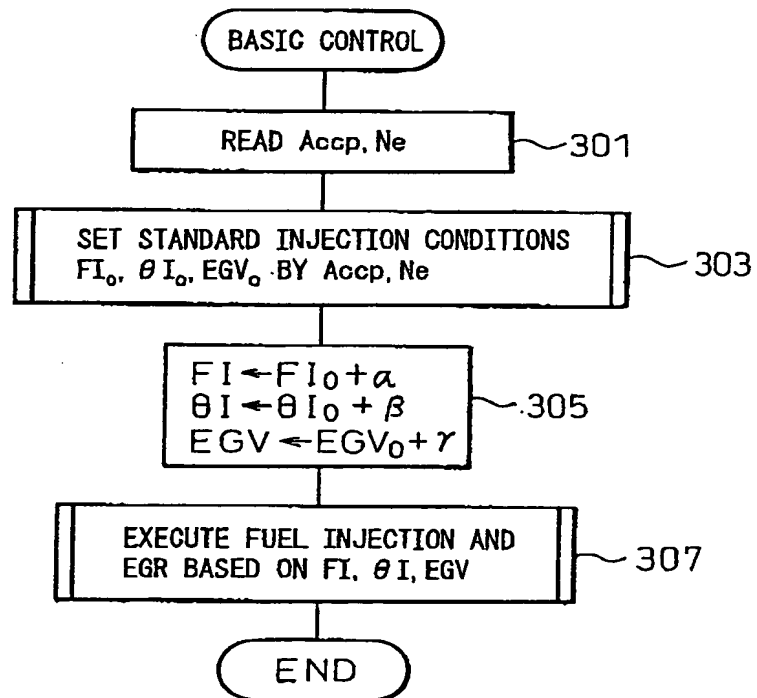


Fig.19

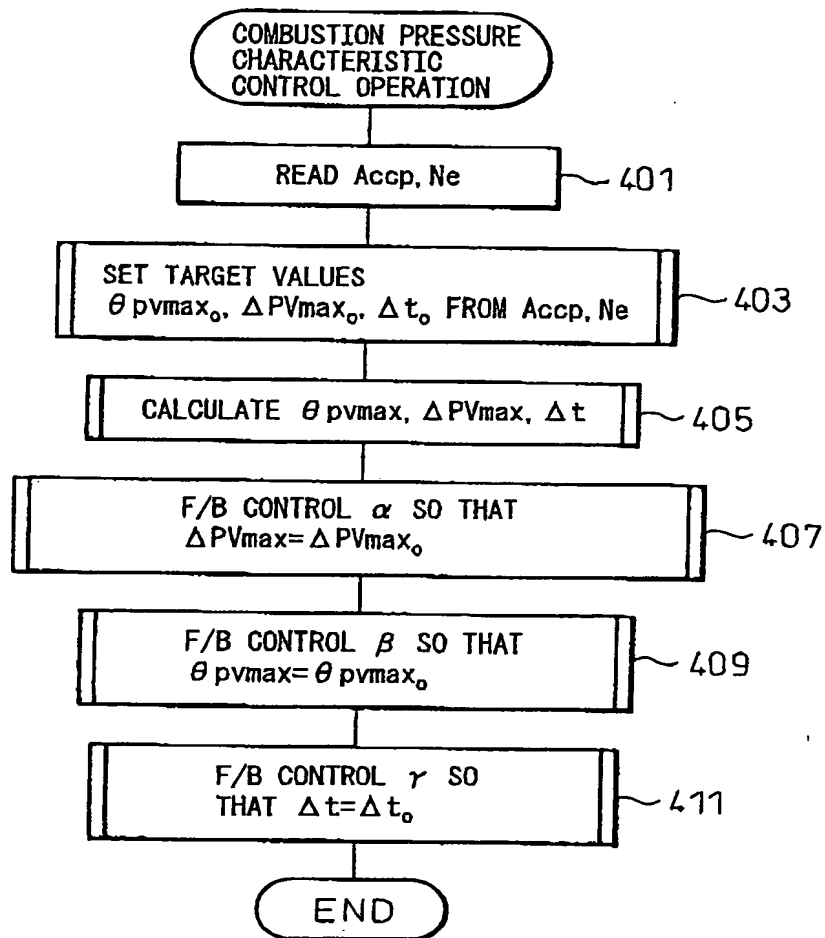


Fig. 20

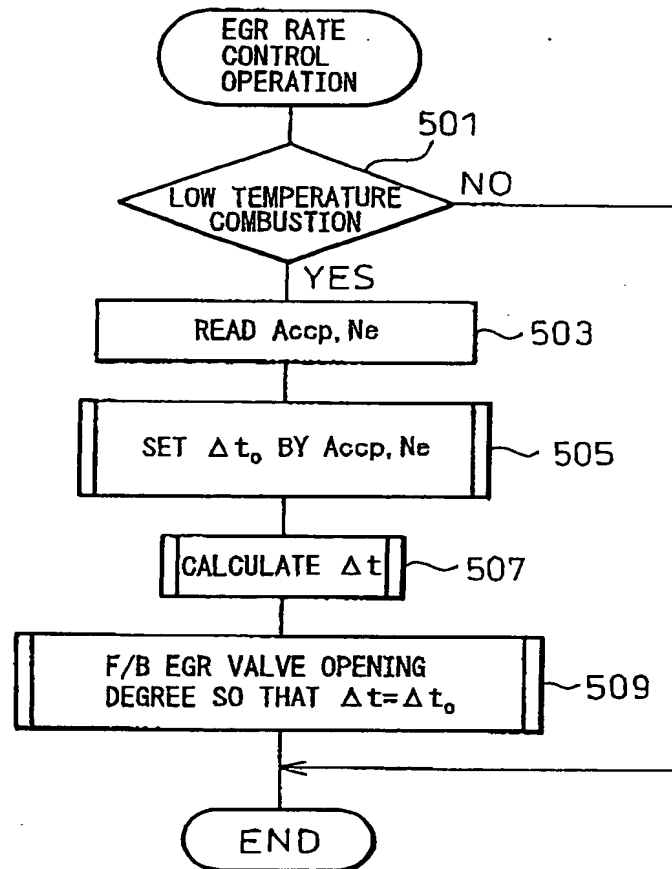


Fig.21

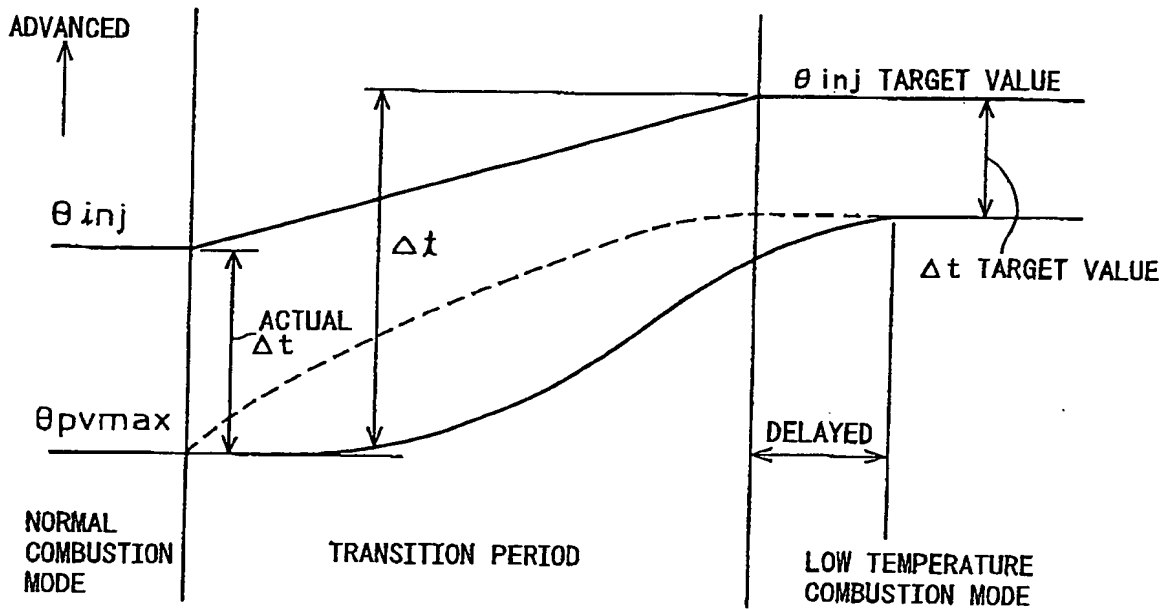


Fig.22

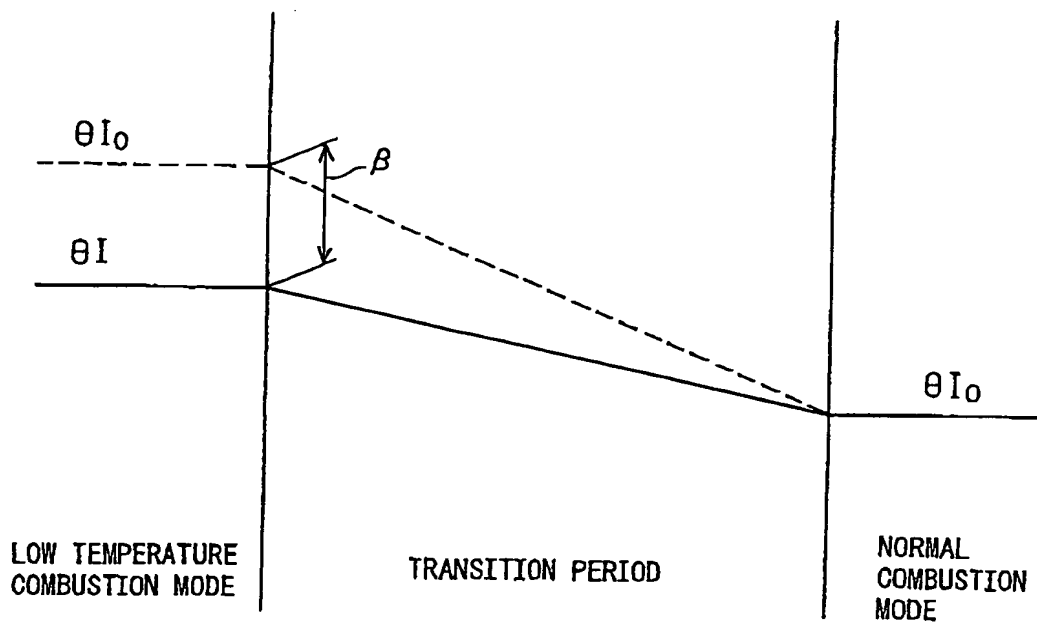


Fig. 23

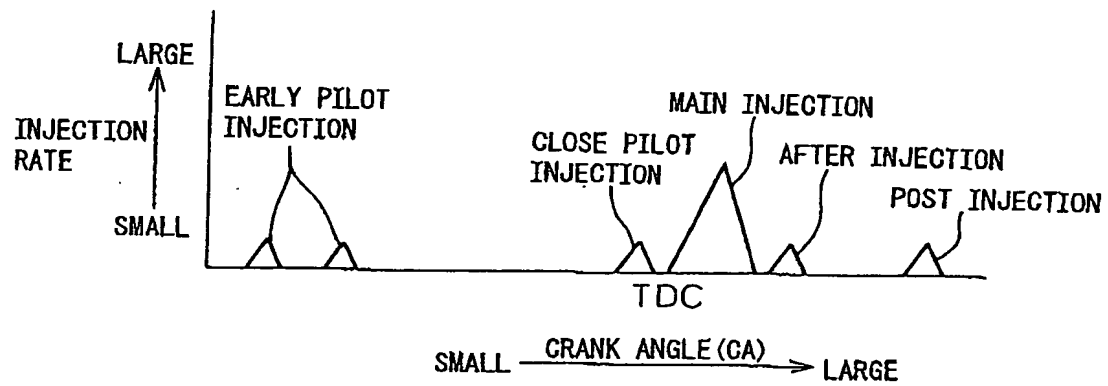


Fig.24(A)

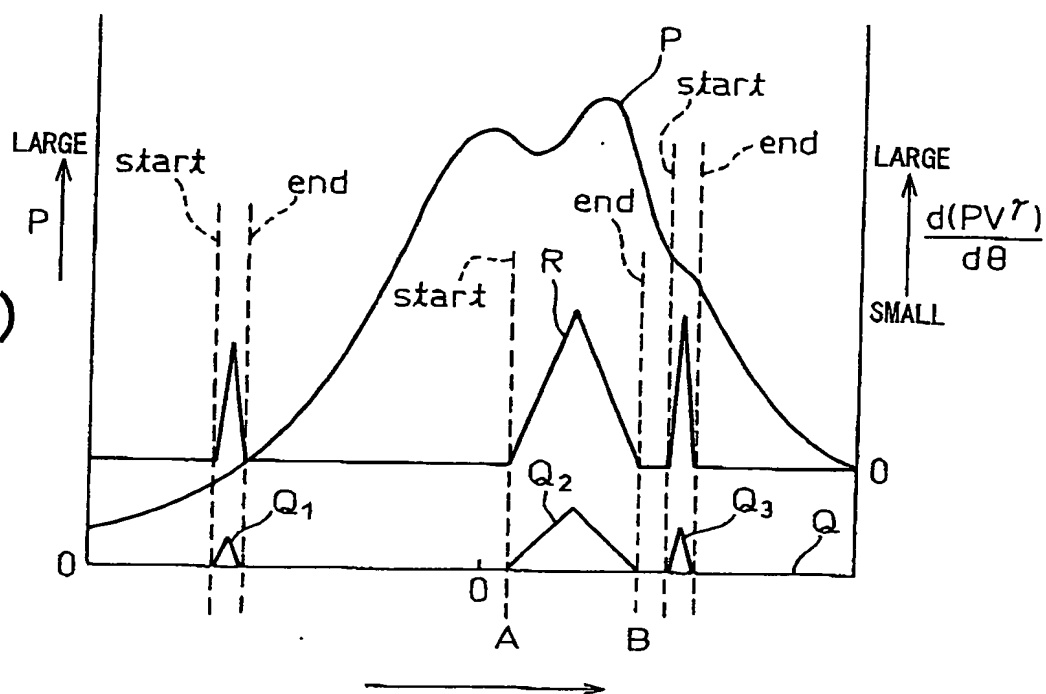


Fig.24(B)

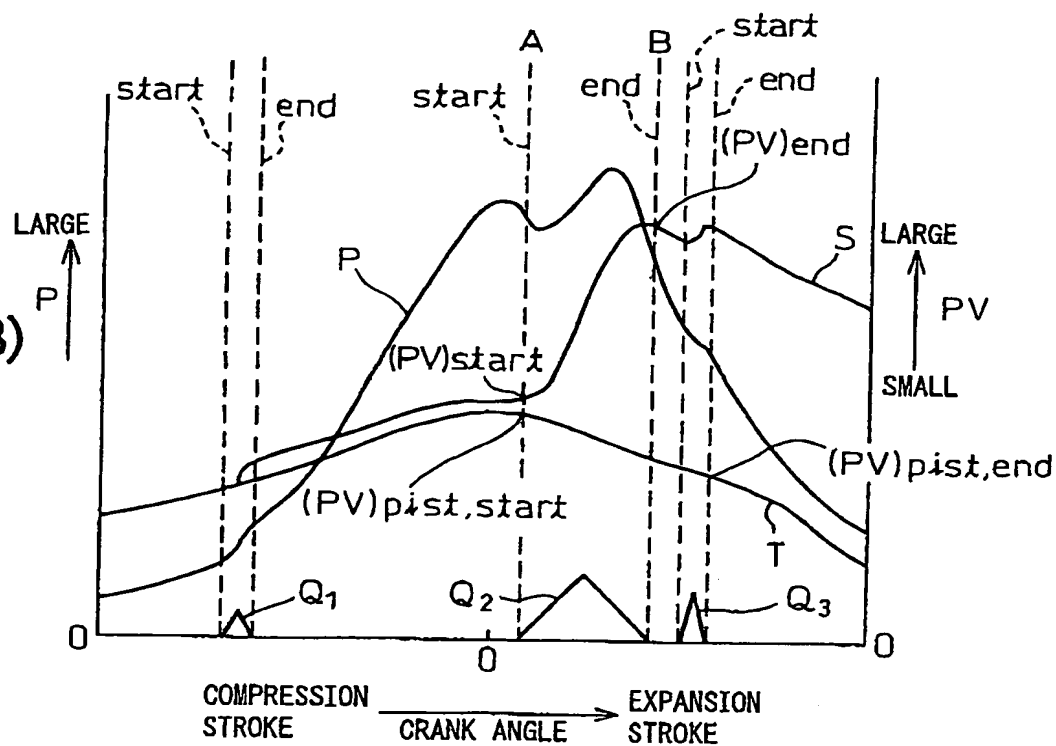


Fig.25

COMBUSTION PERIOD
AND HEAT RELEASE
AMOUNT CALCULATION
OPERATION

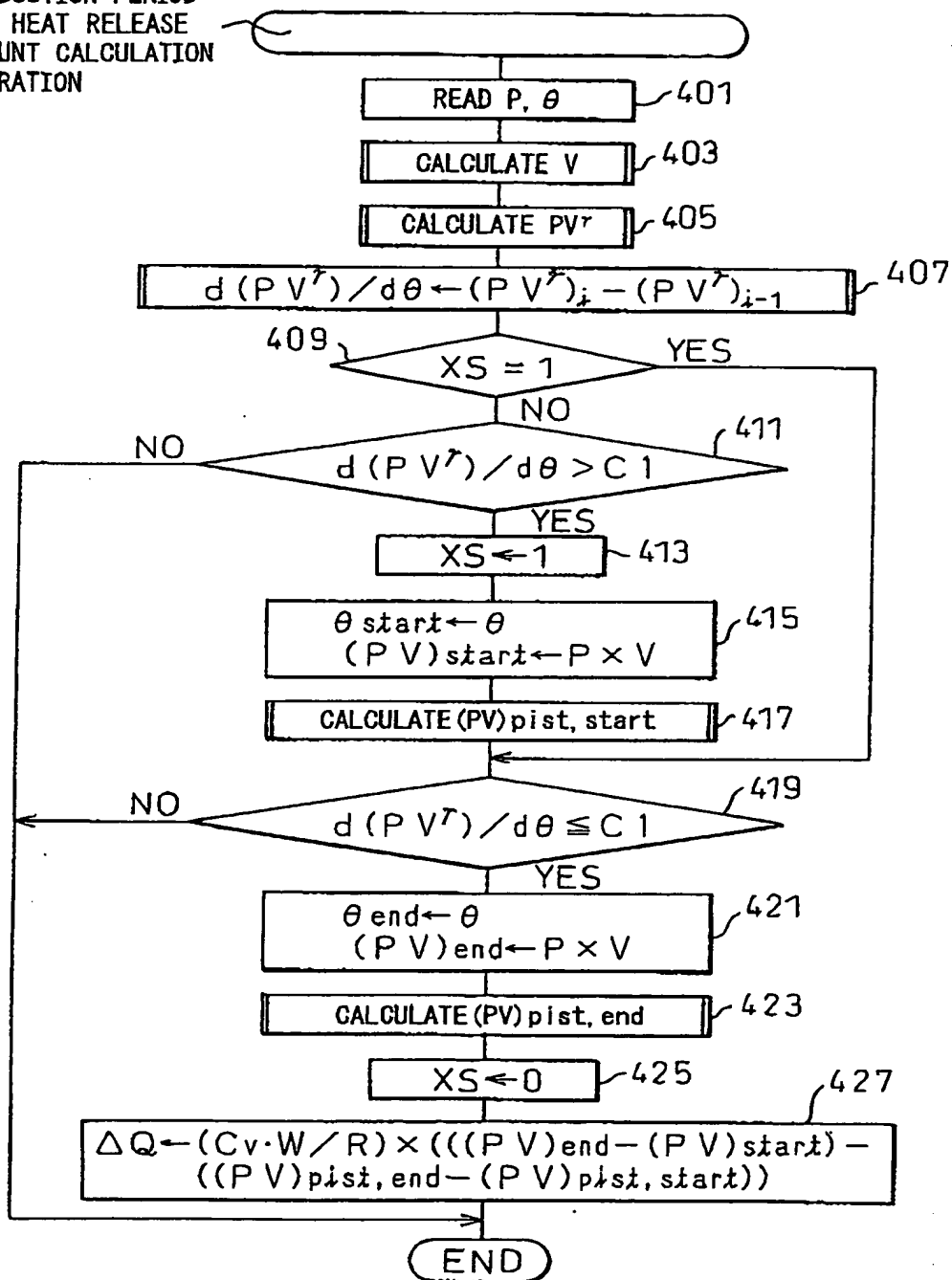
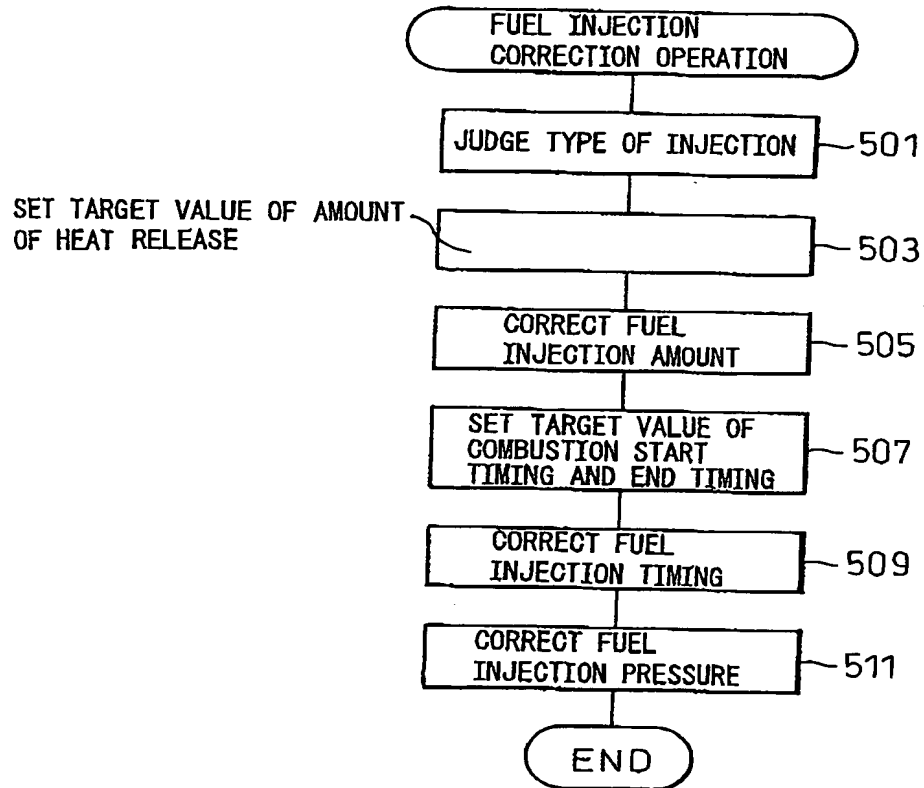


Fig. 26



LIST OF REFERENCES

- 1... diesel engine
- 3... common rail
- 10a to 10d... in-cylinder fuel injector
- 20... electronic control unit (ECU)
- 21... accelerator opening degree sensor
- 25... crank angle sensor
- 29a to 29d... cylinder pressure sensors
- 35... EGR valve